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REMARKS*Summary of Claim Amendments*

Claim 1 has been amended to explain the relationship between the components, to provide consistent terminology between the specification and the claims, and to specify that the textile reinforcement layer has an open mesh structure. Applicants have further added new Claims 2 and 3 to further describe the textile reinforcement material.

Rejection under 35 USC 103

Claim 1 is rejected under 35 USC 103(a) as being unpatentable over US Patent 2,718,684 to BJORKSTEN, in view of US Patent 4,668,319 to PICCOLI.

The argument presented by the Office in making this rejection is essentially as follows:

The patent to BJORKSTEN discloses a pipe-laying method and apparatus including a transportation device, a pipe-forming device including a die that receives extruded material from at least one extrusion material supply device. Pipe of thermoplastic synthetic resin is continually extruded from the die as the device moves along the trench. The digging of the trench may be accomplished by a plow member or trench digger mounted on the extruder device. BJORKSTEN does not disclose two dies nor does it disclose a reinforcing textile supply and guide.

The patent to PICCOLI discloses a method of manufacturing a reinforced die for extruding the inner hose, followed by a reinforcing braider to add the reinforcing layer, and a second extruding die which provides the outer cover layer. PICCOLI discloses that it is known to provide two dies and a wire braider in order to produce a pipe having an inner layer, a braided layer, and a cover layer.

It would have been obvious to one of ordinary skill in the art to provide to the apparatus of BJORKSTEN a second die and a reinforcing textile supply, as suggested by PICCOLI, in order to form a strong, but flexible, multi-layer hose.

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As best understood, the BJORKSTEN patent is directed to an apparatus for the continuous production and installation of thermoplastic pipes. Applicants agree that the shortcomings of the BJORKSTEN patent are its failure to teach the use of a textile reinforcement material and guide and the use of two dies to produce a pipe. The use of two dies is necessary to create a thermoplastic pipe having multiple thermoplastic layers, as is presently claimed by Applicants.

PICCOLI is directed to a flexible hose made of an elastomeric material that is reinforced by a first braid member and a second braid member. The braid members are applied to the elastomeric tube in a single pass (Col. 6, lines 32-34), where the braid members are applied in a helical pattern in opposite directions (Col. 3, lines 27-28). The braid members form a substantially closed structure, as illustrated in FIGS. 1-3.

The Office has suggested that it would be obvious to provide a second die and a textile reinforcing supply, as taught by PICCOLI, to the invention of BJORKSTEN to form a strong, but flexible, multi-layer hose. Applicants, however, believe that there is a complete lack of motivation to make such a combination, because the resulting apparatus would be impractical, inefficient, and cumbersome.

Specifically, it would be necessary to introduce a second die (for the production of a second layer of thermoplastic or elastomeric material), a reinforcement layer (between the first and second layers of thermoplastic material), and a reinforcement layer guide (for directing the reinforcement layer between the first and second thermoplastic layers). PICCOLI teaches that the production of their multi-layer hose is accomplished by providing a pre-formed inner core of elastomeric material around a flexible mandrel,

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spinning two or more different braided spiral sleeves onto the elastomeric tube with elastomeric insulation layers between the braided layers, and curing or vulcanizing the elastomer material (Col. 6, line 17 – Col. 7, line 15).

To incorporate the teachings of PICCOLI onto the apparatus of BJORKSTEN would require the addition of at least the following elements onto the BJORKSTEN apparatus: a second die, a flexible mandrel, a roll of a pre-formed elastomer material, a braiding apparatus, a roll of a first braiding material, a roll of a second braiding material, a roll of elastomeric insulating material, and a curing or vulcanization bed or chamber. The addition of such elements would be not only cumbersome, but also expensive. Furthermore, the flexible mandrels used by PICCOLI are limited, in terms of the length of elastomer tube that may be produced. PICCOLI mentions that "hundreds of feet" of uncured hose can be produced and cured in an autoclave (Col. 6, lines 7-16). BJORKSTEN, in contrast, states that his invention is useful for "laying pipe over long distances and is scarcely useful for a pipe having a length of less than 200 yards and would preferably be used for a pipe having a length of at least one mile" (Col. 2, lines 52-55). Thus, BJORKSTEN teaches an apparatus for installation of pipes over long lengths (e.g., more than hundreds of yards), while PICCOLI describes a process for manufacturing pipes of comparatively short lengths (e.g., hundreds of feet). For these reasons, Applicants believe that there is no apparent reason to combine these references.

Even if the references were combined, the combination of BJORKSTEN and PICCOLI fails to teach all of the limitations of Applicants' claims, a requirement for establishing a *prima facie* case of obviousness.

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Applicants have defined the term "textile reinforcement material" as a "combination of individual yarns or fibers in a configuration which is an integrated two-dimensional article prior to incorporation between the at least two layers of thermally manipulated polymeric materials" (page 11, lines 5-7). Simply put, Applicants' textile reinforcement material is a pre-formed construction incorporated with an extruded thermoplastic layer. PICCOLI, in contrast, teaches *in situ* forming of a reinforcement layer around a pre-formed elastomeric tube.

In fact, PICCOLI teaches that conventional textile yarns, such as polyester, nylon, rayon, and cotton, are not suitable for use as the primary component in the braided reinforcement, because of their tendency to break (Col. 4, lines 21-27). PICCOLI teaches away from the Applicants' invention, which recognizes these yarn types as being suitable (page 12, line 19 – page 13, line 10). Because the present textile reinforcement material is pre-formed before incorporation into the pipe construction, the reinforcement material is not subjected to the same stresses experienced by the PICCOLI braided reinforcement.

Moreover, Applicants specify that "such textiles preferably exhibit a mesh structure" (page 11, line 14) and that "it is desirable that the fabric reinforcement materials are in mesh form and thus exhibit open spaces between the constituent fibers and/or yarns therein" (page 15, lines 9-10). PICCOLI fails to teach such an open structure reinforcement material.

Because the references, if combined, fail to teach all of the limitations of the claims, Applicants submit that no *prima facie* case of obviousness exists. Accordingly, Applicants respectfully request that the rejection under 35 USC 103(a) be withdrawn.

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Enclosures

This response is accompanied by a Petition for Extension of Time (one month), extending the period for reply to July 23, 2007.

This response is further accompanied by a set of Replacement Drawing Sheets (6 total pages) to replace the drawings currently on file. It is believed that no new matter is being added with these replacement sheets and that these formal drawings satisfy the requirements under 37 CFR 1.84 and other applicable sections of the MPEP.

This response is also accompanied by a Supplemental Information Disclosure Statement.

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CONCLUSION

In view of the previous remarks, Applicants respectfully submit that this application is now in condition for allowance. Entry of this Amendment, reconsideration of the subject matter of Claim 1 in light of the above Remarks, and issuance of a formal Notice of Allowability of Claims 1-3 is courteously solicited.

Should any issues remain after consideration of these Remarks, the Examiner is invited and encouraged to telephone the undersigned in the hope that any such issue may be resolved promptly and satisfactorily.

This response is accompanied by a Petition for Extension of Time (one month). In the event that there are additional fees associated with the submission of these papers (including extension of time fees), authorization is hereby provided to withdraw such fees from Deposit Account No. 04-0500.

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